WHAT WE CLAIM IS:

1. A sealed type nickel-metal hydride battery, comprising a positive electrode comprising an active material composed mainly of nickel hydroxide, a negative electrode comprising a hydrogen storing alloy powder composed mainly of rare earth elements, nickel and transition metal elements that absorb and desorb hydrogen, and an electrolyte composed mainly of an aqueous solution of an alkaline metal hydroxide, wherein:

a layer that contains more nickel than does a matrix component and has a thickness of 50 nm to 400 nm inclusive is located on a surface of said hydrogen storing alloy powder, and layers that contain more nickel than does a matrix component are located on a surface of cracks that open at the surface of said hydrogen storing alloy powder.

2. The sealed type nickel-metal hydride battery according to claim 1, wherein said hydrogen storing alloy powder has a mass saturation magnetization of 2.5 to 9 emu/g.

3. The sealed type nickel-metal hydride battery according to claim 1, wherein said hydrogen storing alloy powder contains magnetic nickel in an amount of 0.5 to 1.9 mmol per gram.

4. The sealed type nickel-metal hydride battery according to claim 2, wherein said hydrogen storing alloy powder contains magnetic nickel in an amount of 0.5 to 1.9 mmol per one gram.

5. The sealed type nickel-metal hydride battery

according to any one of claims 1 to 4, wherein the cracks in said hydrogen storing alloy powder is formed by absorption of hydrogen in the alloy powder, and the hydrogen storing alloy powder with the cracks formed therein is treated with an alkaline aqueous solution, whereby the layer that contains more nickel than does the matrix component is formed.

6. The sealed type nickel-metal hydride battery according to any one of claims 1 to 4, wherein said hydrogen storing alloy further contains one or two or more metals selected from the group consisting of erbium, yttrium, and ytterbium.

7. The sealed type nickel-metal hydride battery according to claim 5, wherein said hydrogen storing alloy further contains one or two or more metals selected from the group consisting of erbium, yttrium, and ytterbium.

8. A process for preparing a sealed type nickel-metal hydride battery as recited in any one of claims 1 to 4, comprising:

a first step of absorbing hydrogen in said hydrogen storing alloy powder composed mainly of rare earth elements, nickel and transition metal elements, thereby to form cracks therein,

a second step of treating the surface of the alloy powder and portions of the cracks that open at the surface of the alloy powder with an alkaline aqueous solution,

a third step of removing ions and hydroxides generated by treatment at the second step and composed

mainly of the rare earth elements,

a fourth step of desorbing hydrogen out of the alloy powder, and

a fifth step of partially oxidizing the alloy powder by air.

9. A process for preparing a sealed type nickel-metal hydride battery as recited in claim 6, comprising:

a first step of absorbing hydrogen in said hydrogen storing alloy powder composed mainly of rare earth elements, nickel and transition metal elements, thereby to form cracks therein,

a second step of treating the surface of the alloy powder and portions of the cracks that open at the surface of the alloy powder with an alkaline aqueous solution,

a third step of removing ions and hydroxides generated by treatment at the second step and composed mainly of the rare earth elements,

a fourth step of desorbing hydrogen out of the alloy powder, and

a fifth step of partially oxidizing the alloy powder by air.

10. The sealed type nickel-metal hydride battery preparation process according to claim 8, wherein said cracks are formed by absorbing hydrogen in the said hydrogen storing alloy powder in an amount of 5% or more of an hydrogen absorption amount of the alloy powder.

11. The sealed type nickel-metal hydride battery preparation process according to claim 9, wherein said

cracks are formed by absorbing hydrogen in the said hydrogen storing alloy powder in an amount of 5% or more of an hydrogen absorption amount of the alloy powder.

12. The sealed type nickel-metal hydride battery preparation process according to claim 8, wherein said alkaline aqueous solution is an aqueous solution of sodium hydroxide having a specific gravity of 1.3 to 1.5 at 20℃, and the treatment at the second step is carried out at a temperature of 100℃ to a boiling point of said aqueous solution for 30 minutes to 10 hours.

13. The sealed type nickel-metal hydride battery preparation process according to any one of claims 9 to 11, wherein said alkaline aqueous solution is an aqueous solution of sodium hydroxide having a specific gravity of 1.3 to 1.5 at 20℃, and the treatment at the second step is carried out at a temperature of 100℃ to a boiling point of said aqueous solution for 30 minutes to 10 hours.

14. The sealed type nickel-metal hydride battery preparation process according to claim 8, wherein at the step of removing the ions and hydroxides generated by the treatment at the second step and composed mainly of the rare earth elements, the hydroxide is dissolved and ionized using an acid, whereby the ions composed mainly of the rare earth elements are separated from the hydrogen storing alloy powder by means of filtration.

15. The sealed type nickel-metal hydride battery preparation process according to any one of claims 9 to 12,

wherein at the step of removing the ions and hydroxides generated by the treatment at the second step and composed mainly of the rare earth elements, the hydroxides are dissolved and ionized using an acid, whereby the ions composed mainly of the rare earth elements are separated from the hydrogen storing alloy powder by means of filtration.

16. The sealed type nickel-metal hydride battery preparation process according to claim 8, wherein at the step of desorbing hydrogen out of said alloy powder, hydrogen is desorbed out of the alloy powder by treating with warm water having a temperature of 80℃ or higher and a pH of 9 or less, and hydrogen peroxide solution is added as an oxidizing agent to the alloy powder at 45℃ or lower.

17. The sealed type nickel-metal hydride battery preparation process according to any one of claims 9, 10, 11, 12 and 14, wherein at the step of desorbing hydrogen out of said alloy powder, hydrogen is desorbed out of the alloy powder by treating with warm water having a temperature of 80℃ or higher and a pH of 9 or less, and hydrogen peroxide solution is added as an oxidizing agent to the alloy powder at 45℃ or lower.

18. The sealed type nickel-metal hydride battery preparation process according to claim 8, wherein at the step of partially oxidizing said alloy powder by air, the alloy powder is partially oxidized by air having a temperature of 60 to 90℃.

19. The sealed type nickel-metal hydride battery preparation process according to any one of claims 9, 10, 11, 12, 14 and 16, wherein at the step of partially oxidizing said alloy powder by air, the alloy powder is partially oxidized by air having a temperature of 60 to 90℃.

20. A process of preparing a sealed type nickel-metal hydride battery as recited in any one of claims 1 to 4, wherein the battery is prepared using a positive electrode in which the transition metal elements contained in said active material composed mainly of nickel hydroxide has an average oxidation number of 2.03 to 2.4.

21. A process of preparing a sealed type nickel-metal hydride battery as recited in claim 6, wherein the battery is prepared using a positive electrode in which the transition metal elements contained in said active material composed mainly of nickel hydroxide has an average oxidation number of 2.03 to 2.4.

22. The sealed type nickel-metal hydride battery preparation process according to claim 20, wherein said active material composed mainly of nickel hydroxide is chemically oxidized with an oxidizing agent or electrochemically oxidized by electrolysis.

23. The sealed type nickel-metal hydride battery preparation process according to claim 21, wherein said active material composed mainly of nickel hydroxide is chemically oxidized with an oxidizing agent or electro-

chemically oxidized by electrolysis.